

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of the Claims:

1. (Currently Amended) A ball nose end mill insert for removable affixation to a tool body having a centerline of rotation, the insert comprising:

an insert body having a contact surface for mating engagement with a mounting surface of the tool body;

the insert body including a curved cutting face surface following a curved path within a plane substantially parallel to the centerline of rotation and extending between an axially leading tip cutting face surface and an axially trailing side cutting face surface substantially spaced from the centerline of rotation, the insert body including a curved land surface extending between a tip land surface and a side land surface substantially perpendicular to the tip land surface, ~~an intersection of the curved cutting face surface and the curved land surface forming a curved cutting edge;~~ and

a plurality of face serrations formed along the curved cutting face surface, the face serrations having face crests each raised from the contact surface a distance greater than a spacing between an adjacent face root and the contact surface, each face crest having a face crest centerline and each face root having a face root centerline, an intersection of the curved land surface and the plurality of face serrations along the curved cutting face surface forming a serrated curved cutting edge; and

each face crest at the curved cutting edge being spaced farther from the centerline of rotation than the adjacent face root, such that the face crest engages a workpiece to minimize engagement of the face roots with the workpiece.

2. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein the face crests and the face roots each lie substantially within a respective crest plane and root plane.

3. (Previously Presented) A ball nose end mill as defined in Claim 2, wherein each of the crest plane and the root plane are substantially parallel to the centerline of rotation.

4. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein the curved cutting face surface comprises:

a first cutting face surface lying within a first plane and positioned on one side of the centerline of rotation of the tool body and a second cutting face surface lying within a second plane substantially parallel to the first plane and positioned on an opposed side of the centerline of rotation of the tool body.

5. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein the plurality of face serrations have substantially identical sinusoidal-shaped crest and root profiles.

6. (Currently Amended) A ball nose end mill insert as defined in Claim 1, further comprising:

a side cutting edge formed by the side cutting face surface and the side land surface, the side cutting edge being parallel to the centerline of rotation, and including another plurality of

serrations formed along the side cutting face surface having face crests and face roots forming a serrated side cutting edge with the side land surface[.], each face crest at the side cutting edge being spaced farther from the centerline of rotation than the adjacent face root.

7. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein each of the crest centerlines and the root centerlines are generally perpendicular to a respective intersection of the respective centerline and a tangent to the curved cutting edge.

8. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein the insert body is formed from a carbide material.

9. (Previously Presented) A ball nose end mill insert as defined in Claim 1, further comprising:

a mounting opening extending through the insert body for receiving an attachment mechanism for securing the insert body to the mounting surface of the tool body.

10. (Previously Presented) A ball nose end mill insert as defined in Claim 1, where in the insert body contact surface includes a plurality of grooves for mating engagement with corresponding grooves on the mounting surface of the tool body.

11. (Previously Presented) A ball nose end mill insert as defined in Claim 1, wherein each of the plurality of face crests on a first cutting face on a first side of the centerline of rotation is positioned at a respective axial position along the centerline of rotation, and a

corresponding face root is positioned at each respective axial position along the centerline of rotation on a second cutting face on a second side of the centerline of rotation.

12. (Currently Amended) A ball nose end mill having one or more removable cutter inserts, comprising:

an axially extending tool body having a centerline of rotation;

a tool mounting surface on the tool body for removably securing an insert body to the tool body;

the insert body having a contact surface for mating engagement with a mounting surface of the tool body, the insert body including a curved cutting face surface following a curved path within a plane substantially parallel to the centerline of rotation and extending between an axially leading tip cutting face surface and an axially trailing side cutting face surface substantially spaced from the centerline of rotation, the insert body including a curved land surface extending between a tip land surface and a side land surface substantially perpendicular to the tip land, surface; ~~an intersection of the curved cutting face surface and the curved land surface forming a curved cutting edge; and~~

a plurality of face serrations formed along the curved cutting face surface, the face serrations having face crests each raised from the contact surface a distance greater than a spacing between an adjacent face root and the contact surface, each face crest having a face crest centerline and each face root having a face root centerline, an intersection of the curved land surface and the plurality of face serrations along the curved cutting face surface forming a serrated curved cutting edge[.]; and

each face crest at the curved cutting edge being spaced farther from a center of rotation than the adjacent face root, such that the face crest engages a workpiece to minimize engagement of the face roots with the workpiece.

13. (Previously Presented) A ball nose end mill insert as defined in Claim 12, wherein the face crests and the face roots each lie substantially within a respective crest plane and root plane.

14. (Previously Presented) A ball nose end mill as defined in Claim 13, wherein each of the crest plane and the root plane are substantially parallel to the centerline of rotation.

15. (Currently Amended) A ball nose end mill as defined in Claim 12, wherein the curved face surface comprises:

a first cutting face surface lying within a first plane and positioned on one side of the centerline of rotation of the tool body and a second cutting face surface lying within a second plane substantially parallel to the first plane and positioned on an opposed side of the centerline of rotation of the tool body[.], the another plurality of serrations along the side land surface including face crests each spaced farther from the centerline of rotation than an adjacent face root.

16. (Previously Presented) A ball nose end mill as defined in Claim 12, wherein the plurality of face serrations have substantially identical sinusoidal-shaped crest and root profiles.

17. (Previously Presented) A ball nose end mill as defined in Claim 12, further comprising:

a mounting opening extending through the insert body for receiving an attachment mechanism for securing the insert body to the mounting surface of the tool body.

18. (Previously Presented) A ball nose end mill as defined in Claim 12, where in the insert body contact surface includes a plurality of grooves for mating engagement with corresponding grooves on the mounting surface of the tool body.

19. (Currently Amended) A ball nose end mill insert for removable affixation to a tool body having a centerline of rotation, the insert comprising:

an insert body having a contact surface for mating engagement with a mounting surface of the tool body;

the insert body including a curved cutting face surface following a curved path within a plane substantially parallel to the centerline of rotation and extending between an axially leading tip cutting face surface and an axially trailing side cutting face surface substantially spaced from the centerline of rotation, the insert body including a curved land surface adjacent the curved cutting face surface and extending between a tip land surface and a side land surface substantially perpendicular to the tip land surface; ~~an intersection of the curved cutting face surface and the curved land surface forming a curved cutting edge; and~~

a plurality of face serrations formed along the curved cutting face surface, the face serrations having face crests each raised from the contact surface a distance greater than a spacing between an adjacent face root and the contact surface, each face crest having a face crest

centerline and each face root having a face root centerline, an intersection of the curved land surface and the plurality of face serrations along the curved cutting face surface forming a serrated curved cutting edge, and the face crests and the face roots each lie substantially within a respective crest plane and root plane[.];

each face crest at the curved cutting edge being spaced farther from the centerline of rotation than the adjacent face root, such that the face crest engages a workpiece to minimize engagement of the face roots with the workpiece; and

a side cutting edge formed by the side cutting face surface and the side land surface, the side cutting edge being parallel to the centerline of rotation, and including another plurality of serrations formed along the side cutting face surface having face crests and face roots forming a serrated side cutting edge with the side land surface, each face crest at the side cutting edge being spaced farther from the centerline of rotation than the adjacent face root.

20. (Previously Presented) A ball nose end mill as defined in Claim 19, wherein each of the crest plane and the root plane are substantially parallel to the centerline of rotation.

21. (Previously Presented) A ball nose end mill as defined in Claim 19, wherein the curved face surface comprises:

a first cutting face surface lying within a first plane and positioned on one side of the centerline of rotation of the tool body and a second cutting face surface lying within a second plane substantially parallel to the first plane and positioned on an opposed side of the centerline of rotation of the tool body.

22. (Previously Presented) A ball nose end mill as defined in Claim 19, wherein the plurality of face serrations have substantially identical sinusoidal-shaped crest and root profiles.